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09/801,602	03/08/2001	Petrus Hubertus Maria America	NL 000121	5313

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BRIARCLIFF MANOR, NY 10510

EXAMINER

VU, TUAN A

ART UNIT	PAPER NUMBER
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2124

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/801,602

**Applicant(s)**AMERICA, PETRUS HUBERTUS  
MARIA**Examiner**

Tuan A Vu

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>20020318 reprint</u> . | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> .           |

Continuation of Attachment(s) 6). Other: IDS documents retrieved from EIC ( 2).

### **DETAILED ACTION**

1. This action is responsive to the Applicant's response filed 7/26/2004.

As indicated in Applicant's response, claims 1-5, 7-8 have been amended, and claims 9-15 added. Claims 1-15 are pending in the office action.

#### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 3/11/2002 was filed but 2 items were not provided at the time hence were not considered. The re-submission of the missing documents has been considered this time and the reprint of the PTO-1449 of the same copy submitted earlier is now showing that the missing documents being left off the last time are now considered even though the physical copies of those documents were to be fetched by external sources. Accordingly, the information disclosure statement is being now fully considered by the examiner.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5, and 8-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Regnell et al., "From Requirements to Design with Use Cases", 3<sup>rd</sup> Intl Workwhop on Requirements Engineering – Proceeding CAISE '97, June 1997 (hereinafter Regnell), in view of Don Heim, "Requirements Management with Use Cases" Software Technology Conference, May 1999 ( hereinafter Heim).

**As per claim 1**, Regnell discloses a method for developing a family of complex systems ( pg. 2, ch. 2: Context) having a common software architecture platform, the method comprising:

forming a functional requirements specification (e.g. Fig. 1, pg. 5 ) that include use cases that describe interaction of users with said complex systems in terms of abstract concepts (e.g. –

Note: abstract symbols of Tool for representing graphically a use case reads on interaction in terms of abstract concepts);

forming a requirements object model which explains the abstract concepts in terms of structured vocabulary (e.g. *C11, C12 ... C14, Component Model* - Fig. 2, pg. 5; *MSC, Pseudo code* – last para, pg. 5);

developing the use cases simultaneously with the formation of the requirements object model (e.g. Fig. 2, 3, pg. 5, 6 and related text );

But Regnell does not explicitly disclose amending the requirements object model while the use cases are being developed, the object model being completed once all the use cases have been developed. It was well known that in requirement engineering using methodology to adapt/map interacting graphical representation likes those disclosed by Regnell to a required design/logical model/specifications with, working and modifying the model and the interacting scenarios to improve such mapping/model was a known concept at the time the invention was made because, according to known practice at the time the invention was made, it is much preferred to spend resources up front than to ensue rectifying actions and its costly consequences when the product is finalized and in use. The consolidation of a component specification via a functional distribution model by Regnell using further validation and traceability activities as well as multiple incremental projects (see Regnell, pg. 6-8; *three increments* - pg. 9 ch. 5.1)

already entails the heed for improving as much as possible during the requirements and pre-design stage. Hence, the amending of object model along with the use case scenarios from Regnell would have been strongly suggested if not implicitly disclosed. The incremental improvement to a model and prototype in complex system with of use cases to effect change to a requirement model is evidenced in Heim's teachings. Heim, in a method to capture requirements for an information system related to a Patient-Record Military Health System using Use Cases analogous to Regnell's, discloses requirement capture using use cases and incremental changes iteration of scenarios involving creating model and use cases until a suitable prototype can be tested (e.g. pg. 8). In case Regnell does not provide simultaneous amending of the component model while developing use cases then it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement the requirements object model by Regnell within the incremental approach by Heim so that use cases can be directly involved with iterative improvement of the model, because each use case represents an aspect among more complex business patterns or families of business logic by making incremental improvement to the model in conjunction with new use cases adjustments the final because this would increase the chance of weeding out imperfection at the requirements stage in the functional model approach by Regnell and according to well-known concept of software development, alleviate costly drawbacks during later stages of the software lifecycle just as in the traceability costs analysis emphasized by Heim or suggested by Regnell.

**As per claim 2**, Regnell discloses complex business system and a plurality of developed subprojects with coordination of teams aimed as perfecting a model design (- pg. 9 ch. 5.1) and management of the hierarchy of components related to use cases ( e.g. pg. 6-7); hence has

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suggested organization into teams responsible for requirements and design; modeling/validating and for constructing scenarios mapping each assigned section of the complex system subcomponents or chapters of a master FRS document.

Official notice is taken that managing a large software project using developing teams with overlapping responsibilities ( members of team being used in other teams), from requirement analysis, authoring, to design evaluation, implementation, test scenarios and verification, change reviews and traceability analysis, was a well-known concept at the time the invention was made. Collaborations between use cases being specified by different authors are known in tools like Rational Rose or the likes, thus suggesting overlapping and integrating of separately authored Use cases as suggested by Regnell ( see *development team* -pg. 9 ch. 5.1) or Heim ( see Heim: pg. 8-14). Hence, in case Régnell does not provide overlapping teams for authoring requirement specification and modeling of such requirements and for handling specific ones of the chapters, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide teams for modeling and for authoring requirements so that members of modeling ( e.g. object model control team) teams cooperate with members of the requirement authoring team as taught by common practice as mentioned above. The motivation would be to enable repartition of resource/responsibilities and specialization of domain knowledge as well as knowledge sharing; hence facilitate supervision and interdependency control and/or concurrent development conflict resolution; all of these concepts being integrated in to the common overlapping team concept as mentioned above.

**As per claim 3**, Regnell does not disclose expressing differences in each family of complex system in a component model for each but via projects developed and integrated as

from claim 2, the establishing of a model for each aspect of a family of complex systems would have been obvious because representing one model for a distinct aspect of a family of complex systems would enable specific resources to be allotted just to develop and identify the weakness and strengths of what is to be implemented for such distinct member or aspect, hence increase efficiency, i.e. for the same rationale as mentioned in claim 2.

**As per claim 4**, Regnell discloses initial model ( Fig. 1, 2, 3) as specified in claim 1 but does not explicitly disclose constructing one from a team, performing the FRS authoring of use cases based upon that initial model and performing fine tuning of the use case and the object model.

But it is well evident that when the team, a limitation being obvious by virtue claims 2-3, tackles an aspect of the complex requirement system, the steps of

constructing an initial model,

authoring a use case therefor are disclosed as being implicit from the teachings recited in claim 1 ( see Regnell: Fig. 1, pg. 5 ; Fig. 2, 3, pg. 5, 6 – Note: It is also noted that the use of Case Tool with Use Case for requirement analysis like Rational Rose was a known concept; and official notice is taken that authoring in a requirement building process in such tool implicitly discloses authoring and creating of model graphical representation; and in light of such Regnell has disclosed authoring and building of initial model ); and

fine tuning of the use cases and refining the model would all have been obvious by virtue of claim 1.

**As per claim 5**, Regnell does not explicitly that authoring of use cases is carried out in parallel by respective requirement authoring teams. The concept of parallel developing of



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software and concurrent authoring of model specification by more than one developers in frameworks such as Regnell's using UML or Rationale Rose ( Note: it is not perceivable to have a computer tool and many teams to support a complex system development as in Regnell's when every stage has to be done in a non-parallel or non-concurrent fashion) was a known concept in the art of using Unified Modeling Language or CASE Tools which has been designed for such concurrent use of users operating from separate and heterogeneous development environments. Hence, Regnell in combination with Heim as set forth in claim 1, has disclosed concurrent authoring Use Case in parallel of models by development team members.

**As per claims 8 and 9**, in conjunction with the rationale of claim 3 for getting a model per member of a family, Official notice is taken that subclass being derived from more general classes, multiplicities of relationships exists between classes in an model entity; and that model components be hierarchized by properties or attributes according to industrial nature a problem, a domain, a business logic or a system behavior, in OO modeling framework or Case Tools like that of Rational Rose was a well-known concept at the time the invention was made. Hence, in view of the teachings by Regnell from claim 1 and the rationale in claim 3, the limitation of expressing the differences between members of a family in the requirements model would have been obvious if not implicitly disclosed.

**As per claim 10**, the formation of a draft version falls under the ambit of creating an initial model and refining thereupon as addressed in claim 4 for being obvious; hence the draft version limitation is rejected herein for the same reasoning.

**As per claim 11**, Official notice is taken that in a software development, the analyzing of a requirement model to identify shortcomings and effecting corrective actions to improve such

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shortcomings are well-known concepts at the time the invention was made. The limitation of claim 11 would be implicitly disclosed in Regnell's ( in combination with Heim's) complex software systems development in light of the validation and traceability tracing teachings as mentioned in claim 1.

**As per claim 12**, see claim 1.

**As per claim 13**, this limitation is implicitly taught in Regnell or Heim's requirement fulfilling process; because if one shortcomings is left unresolved in the scheme of requirement validation or verification, the product might not be viable or the purpose of the Requirement engineering process as intended by Regnell would be defeated.

**As per claim 14**, the limitation as to develop use cases simultaneously with requirement object model (ROM) has been addressed in claim 1; the limitation that the ROM is thereby formed would also be disclosed based thereupon.

**As per claim 15**, Regnell does not explicitly teach that the ROM is amended in consideration of use cases analysis. But in light of the rationale that amendments to improve the model are made incrementally in conjunction with use cases, the limitation would have been obvious by virtue of the rationale in the corresponding rejection of claim 1.

5. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Regnell et al., "From Requirements to Design with Use Cases", 3<sup>rd</sup> Intl Workwhop on Requirements Engineering – Proceeding CAISE '97, June 1997; and Heim, "Requirements Management with Use Cases" Software Technology Conference, May 1999; as applied in claim 1, and further in view of Langlotz, USPN: 6,366,683 (hereinafter Langlotz).

**As per claim 6**, Regnell discloses a complex system while Heim discloses that complex systems are medical or hospital related application system (pg. 3-4). In a system using modeling language similar to the Case Tool to specify an instance of medical application similar to the suggestion by Heim, Langlotz discloses the medical system is radiology-related and imaging system ( Fig. 1-2). Since medical imaging is but one of many medical diagnostic or hospital applications, it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement one of the business or medical system frameworks as suggested by Heim so that a medical imaging or any medical diagnostic application using modeling as taught by Langlotz be one of such frameworks, because of the relationships among information data as depicted by Langlotz's medical radiology imaging system would be more enhanced for better analysis and reusability when modeling is used.

**As per claim 7**, this claim recites the medical imaging limitation of claim 6 in conjunction with inter-cooperating teams performing chapters or subsets of the complex FRS as addressed in claims 3-5; hence would have been obvious for the same reasons as used in claims 6, and 3-5 respectively.

#### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (272)272-3735. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (571)272-3719. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 or redirected to customer service at 571-272-3609.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VAT  
November 16, 2004

  
ANIL KHATRI  
PRIMARY EXAMINER